



MUCKLESHOOT INDIAN TRIBE

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December 5, 2006

Tom Loranger, Water Resources Supervisor
Southwest Regional Office
Department of Ecology
PO Box 47600
Olympia WA 98504-7600

Re: Muckleshoot Indian Tribe's Comments on Draft Report of Examination for Lake
Tapps Public Water Supply Project (S2-29934)

Dear Mr. Loranger:

The Muckleshoot Indian Tribe appreciates the opportunity to comment on the Draft Report of Examination ("ROE") for the Lake Tapps Public Water Supply Project and the Department of Ecology's willingness to extend the comment deadline. The Tribe's comments on the draft ROE focus primarily on the minimum instream flows and diversion levels proposed in the draft document. However, as the Department is aware, the Tribe has previously raised substantial substantive and procedural objections to the proposed project and concerns regarding its impacts. While Puget Sound Energy's decision to cease hydropower operations has improved the condition of the White River, many of the questions and concerns previously raised by the Tribe remain unaddressed.

These questions and concerns include:

The Department's continued reliance upon SEPA documents, including a Mitigated Determination of Nonsignificance, that the Tribe contended were inadequate when prepared and which are now clearly outdated in light of the development of new information and changes in the project and the environmental baseline.

The Department's proposed issuance of permits for a significant new regional public water supply project that has not yet been reviewed or determined to be necessary or appropriate pursuant to statutorily mandated water supply planning processes like that required under the Public Water Supply Coordination Act.

The Department's failure to address the question whether RCW 90.54.020, which refers only to groundwater withdrawals, grants authority to permit a new consumptive surface water diversion from the White River which is closed to new consumptive appropriations by rule.

The Department's continued assertion that "overriding considerations of public interest" justifying an exemption from the closure rule can be based on asserted need for new public water supply without consideration of alternative sources of supply?

The speculative nature of the application which is highlighted by the expansive proposed place of use and Puget's failure to secure a binding commitment from the Cascade Water Alliance or any other public water supplier to purchase water supply from the project in the six years since the application was filed.

Without waiving these and other substantive and procedural concerns regarding the proposed decision, the Tribe offers the following comments on the September 25 draft ROE.

The Draft ROE Is Confusing and Suffers from Fundamental Flaws in its Choice of a Baseline Condition and the Analyses of Water Quality and Fishery Impacts.

The confusing nature of the draft document stems in part from the failure of the Department to separately address and analyze the impacts of Puget's application for a change in use of portions of the existing hydropower claim from its applications to support the proposed water supply project. A separate analysis of the impacts of each of the six alternatives identified in the Report of Examination, three with the water supply project and three without it, would add greatly to the clarity of the document and the ability of stakeholders to understand and evaluate the impacts of Ecology's proposed decision. A clear analysis and explanation of Ecology's proposed decision on the change application in the draft ROE, or the separate release of the change decision and its justification, would also greatly facilitate analysis of the impacts of the water supply project and separation of the impacts of the two decisions.

Another aspect of the ROE which contributes to confusion is the designation of one of the three baseline scenarios for operation of Lake Tapps without the water supply project, as the "baseline scenario." It is often not wholly clear whether references to the baseline in the ROE refers to the baseline condition of operation of Lake Tapps without the water supply project, or to the specific "baseline scenario" for such operation. Ecology's apparent intention to grant a change in use of the hydropower claim that allows diversions consistent with the upper bound scenario, subject to further water quality studies, compounds the confusion resulting from the designation of the middle of the three baseline alternatives as the "baseline scenario."

Finally, and perhaps more significantly there are fundamental flaws in the selection of the baseline for modeling impacts of the water supply project and in the analyses of both water quality and fishery impacts.

The Section 10(j) Minimum Instream Flows Previously Recommended by State and Federal Fishery Agencies Are Not an Appropriate Part of the Baseline Condition.

For the purpose of modeling the impacts of the project on the White and Puyallup Rivers the Department has utilized the section 10(j) minimum flows proposed by state and federal fishery agencies¹ in connection with previous FERC licensing proceedings for Puget's hydropower operations as the minimum instream flow that would be in place in the absence of the project. The section 10(j) flow recommendations were proposed prior to listing of White River bull trout and chinook stocks under the Endangered Species Act, have never been implemented, and have been superseded by newer recommendations by the National Marine Fisheries Service (NMFS) (NMFS March 10, 2005). The 2005 NMFS minimum flow recommendations are higher than the section 10(j) flows and substantially equivalent to the modified 10(j) flows proposed by Ecology as a condition of the water supply project.

Significantly, the 2005 NMFS recommendations are currently being implemented by Puget and Corps of Engineers under a Cooperative Agreement entered into in September 2005 for the interim operation of Puget's White River diversion dam. In that Agreement Puget asserts that the March 10, 2005, NMFS recommendations on minimum flows represent Puget's "understanding of the reasonable and prudent measures the Services are likely to determine through consultation pursuant to 50 CFR § 402.14 to be necessary during the Term, to avoid jeopardizing the continued existence of listed species or result in the destruction or adverse modification of critical habitat." Cooperative Agreement between the United States Army Corps of Engineers, Seattle District and Puget Sound Energy Addendum to 1948 Agreement for Interim Operation, September 26, 2005 at 2.

Utilization of the old 10(j) minimum flow regime as part of the baseline when Puget has clearly acknowledged that higher flows equivalent to the modified 10(j) flows proposed by Ecology are required to avoid potential liability under the Endangered Species Act results in the attribution of illusory minimum flow benefits to the water supply project. As explained in greater detail below, minimum flows higher than the Department's modified 10(j) flows, in the range of the flow regime previously proposed by the Puyallup Tribe, are appropriate and required to comply with the ESA and state water quality standards whether or not the water supply project is approved. In any event, the use of the old section 10(j) flow recommendations as part of the baseline is clearly not

¹ At line 403 the draft ROE incorrectly states that the Muckleshoot Tribe helped to develop the agency 10(j) flows. The Tribe did not participate in the development of the 10(j) flows and the reference to the Muckleshoot Tribe as a participant in the development of these flow recommendations should be removed.

warranted and creates an artificially low baseline for evaluation of the water supply project resulting in illusory project benefits.²

A Flow Regime Similar to that Proposed by Puyallup Tribe of Indians (“PTI flows”) Would Reduce Adverse Impacts on Anadromous Fish without Significantly Impacting the Water Supply Project or Recreational Use of the Lake Tapps Reservoir.

The natural flow regime in the White River provides substantially greater flows than the proposed minimum instream flow requirements (ROE Table 20) especially from late fall through mid-summer. The draft ROE fails to acknowledge the role of natural, higher streamflows for salmonid habitat and species life stage survival in the White River. A science panel established to review Washington’s salmon recovery efforts emphasized the importance of higher natural flows that provide for requirements of different life history stages, as well as flows that promote and maintain ecological and hydrological functions and connectivity to in-channel habitats and adjoining features (ISP 2002). Increasing attention has been given to the importance of natural flow regimes in the scientific literature in recent years (e.g., Poff et al 1997; Hill et al. 1991; Ward and Stanford 1995; Richter 1997). Other than during periods of flood control regulation at Mud Mountain Dam, the flow regime near Buckley (USGS Gage # 12098500) retains its typical natural pattern. The life history requirements of anadromous fish have evolved with this natural pattern and are closely adapted to it.

The analysis of fish habitat flow relationships in the draft ROE is confusing as presented and is poorly documented. It appears to be based on past or reanalyzed IFIM studies and a wetted width study almost entirely focused on the lower White and Puyallup rivers. Sole reliance on IFIM microhabitat analyses is not recommended and IFIM habitat simulation has been the subject of much scientific debate (e.g., Castleberry et al. 1996). The draft ROE analysis and underlying studies do not address the connectivity of side channel habitats and other floodplain features in the Reservation Reach or affected downstream areas. The draft ROE also does not address the relationship of higher flows to juvenile survival rates during downstream migration. Finally, the draft ROE fails to properly analyze the impacts of the proposed minimum flows on water quality parameters affecting anadromous fish.

A 2005 study conducted for the Puyallup Tribe of Indians found that the availability of potential salmon habitat in side channels in the White River Reservation Reach increases substantially at higher flows (Herrera Environmental Consultants 2006). The quantity of aquatic habitat available to salmonids, in terms of wetted area, channel length, and bank length, increases with increasing flow and is most sensitive to changes in flow at flows below 3,100 cfs. A second study phase is expected to more specifically analyze changes

² For the reasons set forth in the Tribe’s protest of the change application, the Tribe also believes that the appropriate baseline condition would incorporate lower bound diversion levels, rather than those of the “baseline scenario” described in the draft ROE. *See also*, discussion of Lake Tapps reservoir water quality, *infra*.

in connectivity and habitat area in side channels as flows increase from 400 cfs to 1,000 cfs. Surveys by both the Muckleshoot and Puyallup biologists confirm chinook use of side channel habitats in the Reservation Reach for spawning, incubation, and rearing, as well as, use by chum and coho salmon. Chinook spawning in side channels appears to be significant, with large numbers of redds found. Steelhead redds are also observed in the side channels. Given the dynamic nature of the main channel of the White River, unstable gravels, and extensive flood scour, chinook eggs deposited in side channels in the Reservation Reach probably have a higher rate of survival than those in the main channel (Malcom and Fritz 1999).

Higher minimum instream flows such as those in the range of the PTI flows between March and June (600 cfs to 875 cfs) would improve survival rates of juvenile chinook and chum salmon during spring outmigration compared to the proposed minimum flows. Juvenile migrant trap studies from other Washington river systems indicate that streamflow is positively correlated with survival of juvenile chinook and sockeye during spring outmigration (Seiler et al. 2006; Wetherall 1971). Higher survival is assumed to be associated with lower efficiency of predation by birds and fish at higher flows. Higher flows would improve survival most during periods of low glacial turbidity when visual predators are most effective. Since a large fraction of spring chinook juveniles migrate from spawning areas above Mud Mountain Dam through a 20 mile long bypass reach, higher flows during outmigration would assist recovery of the White River spring chinook population.

Higher minimum instream flow requirements in the range of the PTI flows during June and July (650 cfs to 800 cfs) will help protect steelhead redds from dewatering through fry emergence compared to the proposed flows.

Higher minimum flows in the range of the PTI flows from November through April (500 cfs to 825 cfs) will help protect incubation, early rearing, and overwintering habitats and protect chinook, coho, and chum redds established in side channels through fry emergence. The proposed minimum flows during peak chinook spawning in September and October (500 cfs) drop to 350 cfs over the salmon incubation period. Under Ecology's proposed minimum flow conditions, the resulting stage decrease could disconnect surface flow to side channels dewatering redds or stranding and trapping juveniles.

The draft ROE acknowledges that more flow in the summer improves water quality (line 2107). Higher minimum flows and lower diversions clearly result in cooler water temperatures in the Reservation Reach. Temperature modeling conducted by Dr. Joel Massmann for the Tribe predicts that a minimum flow of 800 cfs would reduce water temperatures at RM 4.9 by 0.8° C compared to the proposed July minimum flow of 500 cfs at average summer air temperatures (Joel Massmann, *pers. comm.* to Holly Coccoli). Given that the range of maximum summer temperatures experienced in the Reservation Reach (17-20° C) is within that causing sublethal adverse effects to salmonids, any increment of temperature reduction is likely to be biologically significant.

Chinook migration and early spawn timing in the White River coincides with water temperatures known to have sublethal effects. Sublethal effects may include migration delay, increased depletion of body fat reserves, disorientation, egg retention, abnormal embryos or alevins, high fry or alevin mortality, increased vulnerability to disease of adults and offspring, and other physiological problems (Berman and Quinn 1991 and 1989). Elevated temperatures during migration can directly affect population and species viability (Berman 1998). Radio tagging studies indicate that chinook can spend 16 to 18 weeks in the White River before spawning (Ladley et al. 1999).

Higher minimum instream flows in the range of the PTI flows during adult chinook migration from late spring to early fall (500 c.f.s to 800 c.f.s.) would result in cooler temperatures and improved reproductive success in both the spring and fall White River chinook populations compared to the proposed minimum flows. Reproductively mature spring chinook salmon held at temperatures ranging from 17.5° to 19° C produced a greater number of pre-hatch mortalities, developmental abnormalities, and smaller eggs and alevins than adults held at 14° C to 15.5° C (Berman 1990). Temperatures during migration and on the spawning ground are related to pre-spawning mortality. High temperatures lower resistance to disease and impair immunological response. For example, adult spring chinook salmon held at 17.5°C to 19°C experienced 88% mortality from *Flexibacter columnaris* while fish held at temperatures ranging from 14°C to 15.5°C had no mortalities although *F. columnaris* was detected on gills (Berman 1990).

Migrating bull trout typically are captured in the Buckley Fish Trap during the months of May through November. A preferred migration temperature range of 10°C to 12°C for bull trout has been reported (Administrative Record, July 21, 1997, Temperature Subcommittee, DEQ 1995).

Biological stresses associated with higher water temperatures are likely to increase in the near term. Climate models project a warming rate in the Pacific Northwest of roughly 0.2-1.0°F (0.1-0.6°C) per decade at least to 2050, with average warming of 1.8°F (1.0°C) by the 2020s and 3.0°F (1.7°C) by the 2040s, relative to 1970-1999 average temperature (Snover et al., 2005). Higher in stream flows will be needed to help offset these increased air temperatures.

In the Puget Sound Chinook Recovery Plan, the White River spring chinook population is identified as one of 2 populations in South/Central Puget Sound needing to attain a low risk status over time to achieve ESU viability (NMFS Northwest Region 2005). Retaining higher flows in the Reservation Reach and minimum instream flows that more closely resemble natural base flows would improve survival and assist recovery of salmonids in the White River.

While counts of White River chinook at the Buckley fish trap have increased since the 1980s, the population cannot be considered “recovered” based on this data, as suggested in the draft ROE (line 2221). Specific recovery goals are not finalized for White River

spring chinook. Further, enumeration of spring chinook at the Buckley fish trap has become more complicated following genetic analysis of adult chinook sampled at the trap in 1998 and of natural-origin chinook smolts sampled in the lower White River in 2000. Both groups were estimated to have 65-70% spring chinook ancestry and 30-35% fall chinook ancestry (Shaklee and Young 2003). Data is not available to determine trends in productivity of naturally-spawning spring and fall chinook under existing watershed land use and habitat conditions (e.g. juveniles-per-spawner and juvenile-to-adult survival rates). It is uncertain whether naturally spawning chinook can produce enough offspring to replace themselves, let alone produce a surplus return to meet recovery goals. A reasonable hypothesis is that the hatchery program is currently supporting a significant part of the increased abundance observed in recent years.

With the exception of the month of August higher minimum flows like the PTI flows would not significantly impact either the water supply project or recreational days as modeled by the Department for the peak recreational season. As Puget itself acknowledges in its Cooperative Agreement with the Corps of Engineers, it has an obligation under the ESA to take reasonable and prudent measures to minimize adverse impacts on listed fish. The PTI minimum flow regime comes much closer to meeting that obligation than the minimum flow regime proposed by Ecology with or without the water supply project.

Diversions into Lake Tapps to Provide “Flushing Flows” Have Not Been Justified. Additional Studies of Lake Tapps Water Quality, if any, Should Be Conducted at the “Lower Bound” Diversion Level, rather than the “Upper Bound” Level.

During the summers of 2004 and 2005, Lake Tapps contained levels of total phosphorus and algal concentrations below the accepted boundary between oligotrophic and mesotrophic states (Welch, 2006). Additional water quality data collected by the Muckleshoot Indian Tribe Fisheries Division during the summer of 2006 found conditions consistent with those observed in 2004 and 2005. Three years of data have therefore already been collected at flow levels well below the “upper bound” levels suggested by the ROE with no indication that there is a water quality problem associated with low diversions into the Lake Tapps Reservoir. Thus, there is no basis for providing interim flushing flows through Lake Tapps while further water quality data is collected.

Total phosphorus, not light, nor flow rate, limits algal biomass during the summer in Lake Tapps. The upper bound and baseline scenario conditions of the ROE assume that flushing flows are beneficial to reservoir water quality. There are two critical flaws in this assumption. First, the flushing rates that would result from “upper bound” or “baseline” scenario diversions are far too low to effectively remove algal growth from the reservoir were it to be a problem. Second, inflows only reduce reservoir phosphorus levels if inflow phosphorus concentration are significantly lower than reservoir epilimnetic phosphorus concentration, a condition that is not present in the Lake Tapps Reservoir (Welch, 2005).

Although Lake Tapps inflow total phosphorus concentration varies over time, the concentration of inflow total phosphorus was never lower than epilimnetic total phosphorus at the Main Western Basin of Lake Tapps ("Station 1 of Ecology's 2004 study) on any of the summer or fall monitoring dates during 2004, 2005, and 2006. Indeed, the inflow total phosphorus was often considerably higher than epilimnetic total phosphorus. Water quality data collected during summers at other locations in the lake were similar to the data for Station 1. There is simply no water quality benefit derived from flushing flows through the reservoir. In fact, lower inflows will result in lower reservoir phosphorus concentrations for two reasons: 1) increased detention time increases loss to lake sediment; and, 2) inflow total phosphorus concentration is higher than the lake epilimnetic total phosphorus (Welch, 2005; Welch, 2006).

The draft ROE proposes three years of additional water quality studies at higher inflows than the inflows that have occurred over the last several years, even though water quality data collected during 2004 – 2006 consistently indicates that higher inflows are not necessary to maintain the reservoir's water quality. If the concern for water quality in the lake pertains to the potential effects of lower inflows, then lower inflow conditions should be assessed based on the "lower bound" scenario described in the draft ROE, not the "upper bound" which is within the range of the data already available that demonstrates the nonexistence of a water quality problem related to reduced flows through the reservoir.

The Summary of Lake Tapps Epilimnetic Water Quality Data in Table 16 of the Draft ROE Does Not Properly Represent Trophic Status and Water Quality Conditions of Concern in the Reservoir.

Summer epilimnetic phosphorus and algal biomass concentrations are generally used to assess the trophic state of lakes and reservoirs, because summer is the period when light and temperature are optimal for algal growth and nutrients are limiting. Spring levels are more variable and not generally used to assess trophic status. (Welch, 2006). The summary data in Table 16 should address the summer timeframe of mid June to late September or early October.

Moreover, a number of the stations in Table 16 are either not lake stations or include hypolimnetic phosphorus, rather than phosphorus levels measured in the epilimnion where algal growth occurs. Stations 7, 8, and 9, are located at the Inlet, White River Diversion, and Tailrace, respectively, not within the reservoir (Hallock, 2006). Station 2 was only monitored by Pierce County and results were analyzed from composite samples taken from 1 meter and mid water column depths (email communication; J. Collins, 2005). Therefore, the data listed for Station 2 do not appear to represent epilimnetic phosphorus and chlorophyll concentrations. Revision of Table 16 to correctly represent summer epilimnetic phosphorus and chlorophyll concentrations would show that summer epilimnetic phosphorus and chlorophyll levels are not a concern in Lake Tapps.

The Recreational Impacts of the Water Supply Project Are Overstated.

Figure 4 on page 15 of the draft ROE compares historic lake elevations with target lake elevations for the water supply project. The historic data shown on this figure appear to be lake stage values, rather than lake elevations.³ The water levels used in the Lake Tapps STELLA simulator also appear to be stage values, rather than lake elevations.⁴ Use of stage values rather than lake elevations results in overstatement of the impacts of water supply and minimum instream flow requirements on recreational water levels in Lake Tapps.

As noted on page 15 of the draft ROE, an agreement dated March 31, 2004 between PSE and the Lake Tapps Community established the objective of maintaining the reservoir at an elevation between 541.5 and 543 feet mean sea level (msl) from April 15 through October 31. The impact of the water supply project on recreational levels was quantified in the draft ROE by counting the number of days between Memorial Day and Labor Day when the model predicted reservoir levels would be below 541.5 feet msl. This analysis was performed for each year for the Baseline, Upper, and Lower Bound diversion scenarios. The results are presented in Table 10 on page 38 of the draft ROE.

Assuming for the purpose of argument that the 541.5 feet msl objective specified in agreement between Puget and representatives of the Lake Tapps Community is the proper threshold for measuring recreational impact,⁵ the results in Table 10 are in error because reservoir stage values calculated with the STELLA model are compared directly to target water level elevations from the homeowners' agreement. The proper comparison would require that either 1) the STELLA stage levels be converted to elevation relative to msl by adding 0.7 feet, or 2) the water elevations in the homeowners' agreement be converted to stage values by subtracting 0.7 feet. If the results from the STELLA model are correctly converted from stage values to elevations relative to msl, then the number of days in which the reservoir level falls below elevation 541.5 feet between Memorial Day and Labor Day is 28 days, not 44 days as suggested in the draft ROE.

³ The datum or elevation of the Lake Tapps gage (USGS Gage 12101000) is 0.7 feet above mean sea level (Kimbrough et al., 2002). This causes the stage elevations to be 0.7 feet less than the lake elevations, when the lake elevations are measured relative to mean sea level using the National Geodetic Vertical Datum (NGVD) of 1929.

⁴ The relationship between water levels and reservoir storage used in the STELLA simulator is the same relationship that is described in the July 28, 1959 storage table provided by the U.S. Geological Survey. The relationship provided by U.S. Geological Survey in the July 28, 1959 storage table relates reservoir stage to reservoir volume. Because the same relationship is used in the STELLA simulator, the water levels in the STELLA simulator should be considered stage values and not elevations relative to mean sea level.

⁵ The scope and nature of recreational impacts, if any, that may occur at summer reservoir elevations below 541.5 feet msl are unclear given that no justification is provided in the ROE or the agreement between Puget and the Lake Tapps Community for the selection of the 541.5 msl elevation as the threshold for measuring adverse recreational impact.

The error that results from using reservoir stage values rather than reservoir elevations has implications in terms of tradeoffs between minimum instream flow levels in the White River and water levels in Lake Tapps. Specifically, minimum instream flows can be increased while achieving the same degree of recreational reliability found acceptable by the Department in the draft ROE.

The Tribe notes that some Pierce County representatives and Lake Tapps homeowners have complained about the recreational impacts of the water supply project and sought to decrease minimum instream flows to provide greater reliability in maintaining desired reservoir elevations. Those complaints ring hollow when one considers that it was these interests that were instrumental in selecting the water supply project as the preferred option for “saving Lake Tapps,” in order to relieve themselves of the potential cost of owning and operating the reservoir solely for recreational use. The adverse recreational impact of the water supply project in dry years is the trade off that the homeowners and Pierce County implicitly accepted when they sought to subsidize the cost of maintaining the reservoir by seeking to turn it into a water supply project. From the Tribe’s perspective, efforts to impose additional environmental impacts on the river in order to enhance recreational reliability are not acceptable.

The ROE Fails to Evaluate Water Quality Impacts in Relation to the Appropriate Water Quality Standards for the White and Puyallup Rivers.

In March 2006, the Environmental Protection Agency (EPA) formally disapproved portions of the 2003 revisions to Washington’s water quality standards regulations because those standards did not go far enough to protect salmon and bull trout in certain streams and rivers. http://www.ecy.wa.gov/programs/wq/swqs/disapproval_docs/epa_disapprove_ltr.pdf. To correct the issues identified by EPA, in June, Ecology filed a new draft rule. <http://www.ecy.wa.gov/programs/wq/swqs/epa-status.html>). The new rule correcting the deficiencies identified by EPA in Washington’s 2003 water quality regulations is likely to be adopted before the ROE becomes final and contains the minimum temperature standards likely to be considered adequate by EPA to protect anadromous fish.

These new water quality standards should be applied to the assessment of the water supply project’s impacts. They establish water temperature criteria of 13 - 17.5°C as measured by the maximum 7-day average of the daily maximum water temperatures (maximum 7dadm), depending on time of year and the reach in the lower White and Puyallup Rivers. In state regulated waters of the lower White River from River Mile 4.0 to River Mile 29.6 at Mud Mountain Dam, a standard of 13°C is applicable from September 15 through July 1 to protect spawning and incubation of native char, salmon and trout. A standard of 16°C is applicable during the remainder of the year to protect summer spawning, core juvenile rearing, migration, and holding. In the lower four miles of the White River, a standard of 17.5°C applies to protect salmon and trout rearing and migration. A standard of 16°C applies all year to protect summer spawning, core juvenile rearing, migration, and holding in the lower Puyallup River, except where the Puyallup

Tribe's standards apply. Table 14 and the draft ROE's analysis of water temperature impacts of diversion and minimum instream flow options should be revised to assess the impacts against the new water temperature standards.

Water Temperatures in the White River Downstream of the Diversion Dam Often Exceed Appropriate Water Quality Standards during Summer and Fall Months.

The lower White River is listed as impaired for water temperature on the Washington State's 2004 Water Quality Assessment 303(d) List (<http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html>). In 2004, the new state standard of 16°C as a maximum 7dadm was exceeded at River Mile 15.5 during most of July and August (Massmann, 2005). In 2005, the new standard of 16°C as a 7dadm was exceeded at River Miles 4.9 and 15.5 during most of July and August. In 2005, the new standard of 13°C (applicable September 15 – July 1) was exceeded during most of mid to late September (Figure 1; MITFD data).

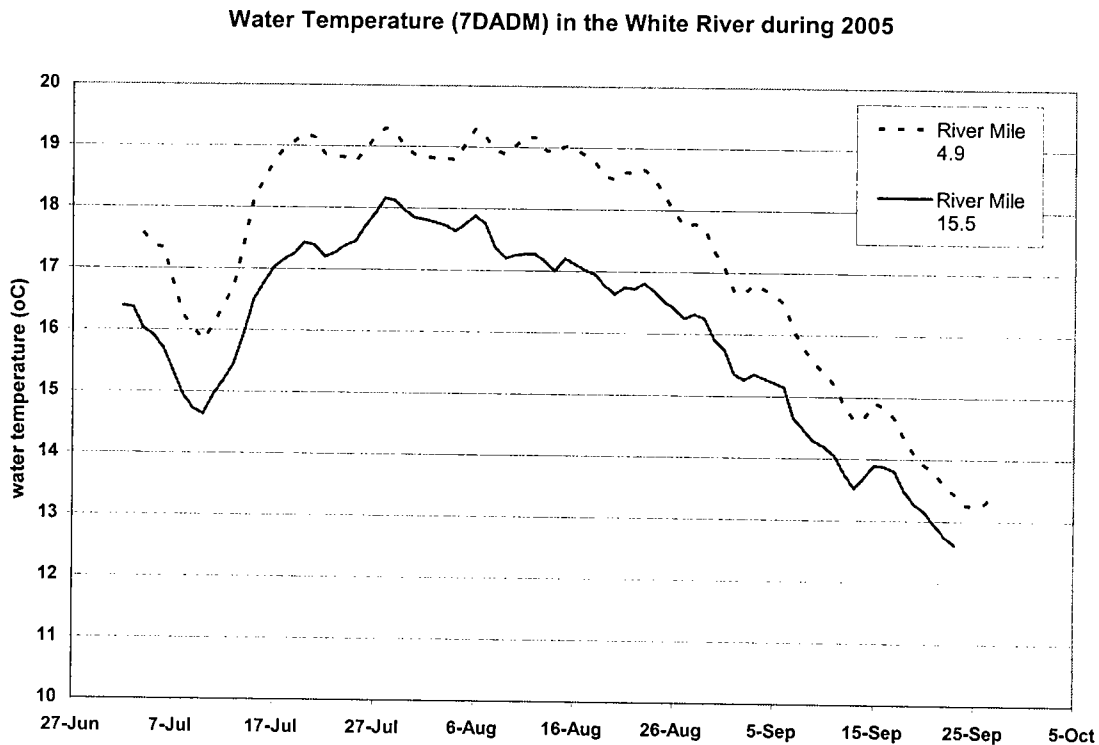


Figure 1. 2005 Water Temperature Data; unpublished, Muckleshoot Indian Tribe Fisheries Division

Figures 12 and 14 of the ROE misrepresent water temperature conditions in the White River relative to the appropriate 7dadm temperature standards for the lower White River. The temperature data used are apparently taken from Ecology's ambient monitoring program at River Mile 8.0 of the White River <http://www.ecy.wa.gov/apps/watersheds/>

riv/station.asp?theyear=2004&tab=final_data&scrolly=721&wria=10&sta=10C095&docextension=.xls&docextension=.xls, which provides a single instantaneous water temperature reading per month. The monthly August 2004 reading was taken on a single day in the morning. Of course water temperature varies over the day and between days as air temperature and flow change. For example, the maximum water temperature for RM 8 shown in Figures 12 and 14 of the Draft ROE is less than 20 degrees C. Continuous temperature data collected by Ecology during the summer of 2002 shows water temperatures at RM 8 that often exceeded 20 degrees C with maximum values greater than 22 degrees (Dept. of Ecology unpublished data from ambient monitoring station 10C085). Therefore a comparison between a single August temperature measurement taken in mid-afternoon and a single temperature measurement in the morning of a day in August another year, or to a 7 dadm standard, provides little, if any, meaningful information. The temperature information provided in the ROE should be revised using best available information and representative data that allows comparison to the appropriate 7 dadm standard.

The ROE's Evaluation of the Potential Effects of the Water Supply Project on Flows and Water Temperatures Is Based on Flawed Assumptions which Result in the Misleading Conclusions

The evaluation of the potential effects of the water supply project on water temperatures and flows utilizing different minimum flow regimes to compare water temperatures with and without the water supply is misleading, inaccurate, and convoluted due to the use of two different minimum flow regimes. The minimum flow regime without the water supply is assumed to be the old agency section 10(j) recommendation, while the minimum flows with the water supply are proposed to be the somewhat higher Ecology modified 10(j) flows described in Table 20 of the ROE. As noted above, there is no basis for the utilization of the former agency 10(j) flow recommendations as part of the baseline condition without the water supply when Puget has already agreed to, and is implementing higher minimum flows equivalent to the modified 10(j) flows suggested as water supply permit condition in the draft ROE. The use of the outdated flow recommendations results in the attribution of illusory benefits to the water supply project.

The pH Data Presented in the Draft ROE Are Not Representative and the Document Fails to Evaluate the Potential Effects of the Water Supply Project on pH in the Lower White River.

Washington State water quality standards require the lower White River to meet pH criteria of 6.5 to 8.5 standard units. The lower White River is listed as impaired for pH on Washington State's 2004 Water Quality Assessment 303(d) List (<http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html>), due to exceedances of the upper pH limit. pH values above 9.0 have been measured in the lower White River and as noted by Ecology's focus sheet on the White River pH cleanup plan (<http://www.ecy.wa.gov/>

pubs/0310026.pdf), these pH values may cause sublethal and lethal effects on fish. High pH values increase the fraction of molecular (unionized) ammonia in solution and the toxicity of total ammonia to salmonids (DEQ, 1995).

pH violations have been documented during all seasons of the year (Stuart 2002; Erickson 1999). However, peak periphyton growth, which is one of the causes of the high pH values, occurs from mid fall through late January or early February (Stuart 2002). Figure 16 in the ROE does not cover the period of peak algal growth, which is most relevant to the pH problem in the river. In addition, the pH data represented in Figure 16 are from Ecology's ambient monitoring program at River Mile 8.0 of the White River http://www.ecy.wa.gov/apps/watersheds/riv/station.asp?theyear=2004&tab=final_data&scroll=721&wria=10&sta=10C095&docextension=.xls&docextension=.xls, which includes one pH reading per month. Because pH may vary by more than one pH unit over a twenty four hour period, due to photosynthesis and respiration of algae (Stuart 2002), existing pH conditions or comparisons of monthly pH across years based on a single monthly instantaneous measurement are not meaningful. The representation of pH conditions in the lower White River should be revised using best available information and representative data.

The ROE acknowledges that pH violations may be reduced by increased flow in the river. However, the ROE fails to analyze the effects on pH of the flows associated with the water supply project. The potential effects on pH should be evaluated in the ROE.

Other Fisheries Comments

Line 2157. The draft ROE fails to consider potential WSP impacts to migrating bull trout in the White River Reservation Reach. Peak counts of bull trout occur in the Corps of Engineers' Buckley Fish Trap from May through November. A yearly average of 28 native char were collected at the trap and trucked above Mud Mountain Dam between 1990 and 2002. Char caught and tested at the trap station were found to be bull trout.

Line 2282. As noted above, a minimum flow regime equivalent to the modified 10(j) flows has been acknowledged by Puget to represent the minimum flows required to avoid potential ESA liability without the water supply project. The modified 10(j) flows proposed by Ecology do not provide an enhancement to the Reservation Reach, because they are already being implemented by the applicant without the water supply.

Line 2348. The draft ROE was prepared without the benefit of current fisheries information and so incorrectly states that little spawning occurs in reaches affected by the WSP. Significant spawning of chinook, chum, coho, pink salmon and steelhead in the Reservation Reach has been observed since the late 1990s by tribal surveys (e.g., Marks et al. 2002). The Reservation Reach supports a large percentage of the total chinook salmon spawning in the White River. A 1997 survey conducted by tribal biologists identified ten side channels with extensive chinook spawning between RM 8.9 and RM 15.5 (Malcom and Fritz 1999). Based on the numbers observed and the spawning sites

sampled compared to known spawning sites, the surveyors concluded that greater total numbers of chinook are likely to spawn in the Reservation Reach, than above Mud Mountain Dam. Of the chinook spawning in the upper Reservation Reach, a significant portion are likely spring chinook. An estimated 22% and 19.7% of radio-tagged spring chinook spawned in the upper Reservation Reach in 1996 and 1997, respectively (Ladley 1997).

Line 2505. The number and magnitude of reductions in White River flow following cessation of diversion to address Puyallup MIFs adversely affects fish. Table 19 shows that almost 30% of the time flow decreases will be greater than 50 cfs and that over 12% of the time flow decreases will be greater than 100 cfs. These artificial flow decreases may aggravate trapping and stranding mortality of fish in lateral areas in the White River. The proposed ramp rate restrictions may limit stranding and trapping on gravel bars compared to less protective or no ramp rates, but do not protect against stranding in potholes and of fish rearing in side channels.

Line 3152. Avoidance of impact to spawning fish is given as the purpose of the Fall Augmentation Plan, but the Fall Augmentation Plan releases could result in stage increases and subsequent decreases that may jeopardize salmon in the lower White River. Drawdown operations should be coordinated with tribal and fisheries agencies, with protection of salmon and redds in the Lower White River as the highest priority, rather than maintenance of Puyallup River MIFs.

Line 3244. The tailrace barrier design should minimize attraction and block entry of both juvenile and adult salmon.

Line 3252. The diversion fish screens have not been tested in the last 10 years and have not been tested under the lower diversion canal flows proposed to insure that design specifications and state and federal fish protection criteria continue to be met. A plan should be developed in coordination with the appropriate agencies and tribes. Retesting should occur within the soonest possible timeframe and be required at appropriate intervals, as well as, a screen maintenance program approved by the appropriate federal, state, and tribal fisheries agencies.

The Supply and Demand Analysis Contained in the Draft ROE Is Flawed

There are a number of flaws in the supply and demand analysis utilized in the draft ROE to justify the asserted public water supply need for the proposed project. These flaws include use of what appears to be a composite demand forecast from a draft of Cascade Transportation and Supply Plan which aggregates the individual demand forecasts contained in Cascade's members water supply plans. As noted in the 2001 Central Puget Sound Regional Water Supply Outlook, simple addition or aggregation of individual utility demand forecasts to create a composite demand forecast for a group of utilities overestimates total demand. The overestimation of demand in the forecast relied upon in the draft ROE is illustrated by the fact that while per capita demand has been declining in

the region as the result of increased conservation, the forecast relied upon shows water use by Cascade members increasing faster than projected population growth.

Perhaps more importantly the supply and demand analysis contained in the draft ROE fails to assess the availability of alternative sources of supply or acknowledge that much of Cascade's projected supply shortfall is the result of its decision to reject alternative supply offered to Cascade. As discussed further below, the failure to consider the availability of alternative supply sources is a critical flaw in the Department's OCPI analysis.

The OCPI Analysis Fails to Address the Applicability of RCW 90.54.020 to the Proposed Surface Water Diversion and Fails to Consider Whether Alternatives Are Available to Advance the Interests Which Are Claimed to Support Granting the Requested Permits.

RCW 90.54.020(3)(a) provides:

(3) The quality of the natural environment shall be protected and, where possible, enhanced as follows:

(a) Perennial rivers and streams of the state shall be retained with base flows necessary to provide for preservation of wildlife, fish, scenic, aesthetic and other environmental values, and navigational values. Lakes and ponds shall be retained substantially in their natural condition. Withdrawals of water which would conflict therewith shall be authorized only in those situations where it is clear that overriding considerations of the public interest will be served.

"Withdrawal" is a term of art in Washington water law which refers to groundwater appropriations as opposed to surface water diversions. The draft ROE fails to explain how RCW 90.54.020(3)(a) which only appears to authorize withdrawals which conflict with preservation of base flows authorizes the proposed decision to allow a surface water diversion in conflict with the closure of the White River.

Beyond the question of whether RCW 90.54.020(3)(a) authorizes the Department to issue the proposed decision, the OCPI analysis is notably lacking meaningful consideration whether there are available alternative means of advancing the interests claimed to support the ROE. Problems with analysis of each of the public interests asserted to be potentially benefited by the WSP are discussed in more detail below.

Public Water Supply Benefits

In section 3.3.2, the draft ROE acknowledges that Lake Tapps is one of a number of potential regional supply options available to serve future demand in central Puget Sound. However, neither that section which is titled "Alternative Supply Analysis," nor

the OCPI analysis of public water supply benefits at lines 2577 – 2587 examines the availability of alternative supply options to meet any future regional supply shortfall. It is simply impossible to determine the weight to be given to alleged public water supply benefits without a comparison of regional supply alternatives and their relative impacts on the interests protected by the rule closing the White River to new appropriations.

The Department's failure to consider the availability of alternative sources of supply in connection with the Lake Tapps project is especially troubling here given that the majority of Cascade's alleged shortfall is the result of its voluntary decision to reject up to 44 mgd of water previously offered to it by Seattle Public Utilities. Thus the main justification for granting an OCPI exception to the closure rule appears to be based on Cascade's political decision to reject alternative supply.

Improved Flows in Flow-Impaired Streams in Watersheds Where Lake Tapps Water Would Be Used

The benefits of the source exchange program at this point are entirely speculative. Without an implementation plan that identifies the stream reaches that will be benefited it is simply impossible to determine whether the alleged benefits of the proposed program which takes water from a closed system will outweigh the interests advanced by the closure rule.

The Tribe notes that unlike the White and Puyallup systems, the Green and Cedar Rivers are already heavily impacted by diversions for municipal water supply which supply much of Pierce County's municipal water demand. While the Tribe is open to consideration of the source exchange program if it would benefit flow impaired streams of particular tribal concern in the Lake Washington and Green River watersheds, it strongly opposes transfer of source exchange water to Pierce County watersheds.

Protection of Riparian or Adjacent Wildlife Lands

Contrary to the statement at lines 2601 – 2603, it is the Tribe's understanding that Puget has not agreed to, and has no intention of placing a conservation easement on its 2500 acres of surplus riparian and wildlife land in the White River Basin. Instead, Puget with the assistance of the Cascade Land Conservancy is seeking to identify a conservation minded buyer for most of the lands surplus to the needs of the water supply project. The potential benefits of a sale to such a buyer are not an element of the water supply project and therefore should not be considered a benefit in the Department's OCPI analysis.

Increased Likelihood of Maintaining Lake Tapps as a Recreational, Aesthetic, Groundwater Recharge, and Wildlife Resource

Ownership and operation of the reservoir for recreational and aesthetic objectives by Pierce County or a lake improvement district formed by local homeowners is a viable alternative to the water supply project that would maximize recreational, aesthetic,

groundwater recharge, and wildlife benefits. In fact the homeowners' agreement with Puget grants the homeowners the right to purchase the reservoir and project works in the event the proposed sale to Cascade is not completed. The fact that Pierce County and the homeowners would prefer to avoid the cost of buying and operating the reservoir for recreational and aesthetic purposes and have promoted the water supply project to subsidize these interests is not a basis for granting an exception to the closure rule based on alleged recreational, aesthetic, groundwater recharge, and wildlife benefits.

Improved Aquatic Habitat and Water Quality in the 21-Mile Reservation Reach of the White River as a Result of Improved Instream Flows

The claimed benefit of higher minimum instream flows is based entirely on the unwarranted selection of a baseline minimum flow condition substantially lower than the existing minimum flow regime being implemented by the applicant. Removal of 100 cfs from the Reservation Reach does not improve aquatic habitat or water quality.

Improved Aquatic Habitat in the Lower White/Puyallup Rivers from the Minimum Instream Flow Compliant Diversion

The benefits, if any, of imposing MIF compliant diversion requirements on the baseline reservoir maintenance diversion are at best minimal if the diversion is limited to the "lower bound" scenario as it should be, and are offset by the removal of 100 cfs on average from the system by the water supply project.

The Proposed Gauging Requirements Are Inadequate

In section 5.3.17 at line 3267, the Department proposes to require gauging of diversions into the reservoir for water supply purposes. All diversions into the reservoir should be accurately metered without further delay, not just those for the future water supply project.

The USGS ceased reporting diversion canal flows in September 2004 because the existing gage was designed to measure medium and high flows and produces unreliable results at the lower diversion levels that have occurred since Puget ceased hydropower operations. The USGS website for the Buckley Canal Gage states:

The apparatus currently installed to determine discharge at this station, which was designed primarily to measure medium to high flows, produces unreliable results for the low discharges that now typically occur in the canal. Therefore, only gage height will be displayed until an improved method for producing reliable low discharges has been determined and installed.

In March of this year, the USGS provided Puget with a plan for needed upgrades of the White River gauging stations and a proposal for accurately gauging flows in the White

River Canal. Puget responded that they were not interested in the upgrades and the necessary improvements to allow accurate gauging of the Canal flows remain unfunded, notwithstanding continuing diversions into the reservoir.

The Department should exercise its existing authority to require Puget to accurately measure diversions into the reservoir immediately, irrespective of the status of Puget's applications. Puget does not need and should not be provided with additional time to implement accurate metering of its diversions into the reservoir, nor should proper canal gauging be tied to the status of the ROE.

While Puget should be required to implement accurate gauging of the diversion now, the ROE should require Puget to develop a plan to insure permanent accurate gauging of the canal, White River in the Reservation Reach, tailrace discharges, and reservoir elevation with the USGS providing oversight and approval of all gages, locations, and methodologies. Preferably, the USGS should implement the gauging program to be funded by Puget or its successors as long as water is diverted from the White River into the reservoir for any purpose. USGS oversight is necessary to insure reliable, impartial, and timely information that is available to all resource managers and the public.

Other Comments

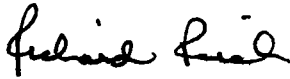
At page 83, line 2839 the draft ROE states that the Muckleshoot Tribe has asserted that the water supply project would impair its treaty rights, reservation based Winters rights, and aboriginal water rights. The Muckleshoot Tribe's federally reserved water rights have not been quantified and the Tribe has not asserted an impairment of those rights.

Conclusion

The draft ROE is based on outdated SEPA documents that failed to fulfill either the lead agency's or the Department's SEPA obligations when they were issued, and uses a flawed baseline for analysis of project impacts which results in the attribution of illusory benefits to the water supply project. The water temperature standard utilized in the ROE's impact analysis is outdated and not protective of fish resources. The OCPI analysis fails to explain the basis for the Department's conclusion that RCW 90.54.020(3)(a) authorizes a surface water diversion inconsistent with the closure of White River to new appropriations, and fails to meaningfully consider alternative means of realizing the alleged benefits attributed to the water supply project. Higher minimum flows on the order of those proposed by the Puyallup Tribe are readily achievable and would reduce the adverse impacts on fish stocks listed under the ESA with little or no impact on the water supply project or recreational use of the reservoir. Finally, the diversion levels proposed are unnecessary, wasteful, and would result in an unlawful take of listed fish stocks.

While the Muckleshoot Tribe remains open to working with the Department, Puget, and the Cascade Water Alliance to address its concerns, the Tribe objects to the project and to the issuance of the ROE as currently structured.

Sincerely,



Richard Reich
Tribal Attorney

cc: Muckleshoot Fish Commission
Brian Faller

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⁶ This powerpoint presentation was originally presented by Dr. Welch to the Washington State Department of Ecology on January 26, 2006.